

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

- (A) NAME: Max-Planck-Gesellschaft zur Foerderung der
Wissenschaften e. V.
- (B) STREET: none
- (C) CITY: Berlin
- (D) STATE: none
- (E) COUNTRY: Germany
- (F) POSTAL CODE (ZIP): none

(ii) TITLE OF INVENTION: Regulatory Sequences Capable Of Conferring
Expression Of A Heterologous DNA Sequence In Endothelial
Cells In Vivo And Uses Thereof

(iii) NUMBER OF SEQUENCES: 21

(iv) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: Floppy disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- (D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12845 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

TCTAGAATAT AGAAGATAAG TTTGCGTACA ATTCAGTCCT TTGAAGACCT GATAAGCTTT	60
AAGAAGGAAG ATGGGTTACA CATTGGGAAA TGGTTGCAAT CTGCACATGG CAGAGGCAAG	120
AGATGCAAAT CACATTTCTT ACATACTCCA TACAAATCTT ACAAGACTGT TTTTCTTTCT	180
CATTTAAAT AAGAAGACCT GCCAGTCTTC CCCTTATTAC TAATTACAGT CACTCTGTAT	240
CTTTGTTGAC ATTGGATAGT TTTACATACT TCAACAGGCT GGTGTCATTA AAGTTGTGGT	300
GGGTGGGCAC CAGAGACACG TGATTCAGAG TGGGAGGAGA TGCAGGAGAA ACGAGGCACA	360

GCAGAAGCAG AAGCGAGGAA AAACACTCTC AACGTTACTA ACACATCGAG AGGTTCCGCA 420
CACTAGCAAT ACGGGCTGAA TCTGACCTAA TCTCTGCTGT TGAAAATTTT GCCTAGCCGC 480
ACACTAGCAA TACGGGCTGA ATCTGACCTA ATCTCTGCTG TTGAAAATTT TGCCTAGCCT 540
GTCACACAAG TGCTGAGCAT ACAGAAAAAG GAGAGTAATT CTCTGGTTCT TTGACTAACC 600
AAATAGTCTA TATCAAATTG CCTAAGATAA TGTATACATT TAGTACATGA CTGGTTATAC 660
CTATTCTATA TGA CTATTAT TTAATGTGA ATTTACAAGT GAGCATATGA AGTCCATTTT 720
ACATGGCTAG TACATATAAC TTTTAAAAAG TTGGACATAG TTATATTTTT CCATTTATTT 780
ATTTACTTTA TATCCTGATC ACAGACCCCC CCCTCCTCTG GATTAACCTCT CTCCACTGCT 840
TCTTACCCCT CCCCATCTCT CTTTCACCTC TGAGAAGGGG GGATACCTCC TGTCTTATCT 900
GGTTTCAGTG GGAGAAGGAT GTATCCTAAC ACATATAATT TTTAATATCC TGAGTTTTTC 960
TTTCATACAC CTTACTTATT CTATTCATTT TTCAGGAAGG CATGTTTAAT GTTTTTTTTT 1020
TAATTTTATG TGTACGAGTG TTTTGCCTAC ACAGTCATAG TGCATCGCAT ACATTTTTCG 1080
TGCCCGTAGA GATCAGAAGG GAGCATTGGG TTCCCTAGGA CTGGAGGCAT GAACCACCTT 1140
GTGGGTGCAG AGAACTGAGC CTGGGTCATC TCAAAGCATC AGGTCTTCTT TGAGTCATCT 1200
CACTTGCCAC TTCTCCCATT TACTGATTTT ATCTGTGTGC AGACATTCAT GGCCAGTCC 1260
ACAGGTGGAA GTCAGGGACA ACCTATAGGA GTCAGTCCTC TCCTTCTACC GTGTGAGTCC 1320
CTGGCCTCAA ACTCAGGTTG TCGGGCTTCA TAGCAAGAGC TTCTATTTGT TGAGCCATCT 1380
TGCTAGCCCC ACCCCATACT ATCTTTATAA TATCTGTTTA ATTAAGACAT TCATAATGAA 1440
TTTTATTAA ACATCATCGTT ATCCCTTTA CCAATTTTAC TATGTATTAA TTGCCACCCC 1500
TTTAAATTTA ATTACTTCCT TGGCTGGGTT TTACAGGAGA GTTCCAGGAA GCTAGATGGA 1560
GAGATGGCTC AACAGTTTAG AGCAACGGCT GTTCTTGCGAG AGGACCTAGG TTCAAGTCCT 1620
GGCACTCAGA GGTGGCTCAC AATCATCTGT GACTTCAGTT CCAGGGGATC TGAAGAATTC 1680
TTCTGGGCTC CATGGGCATC AACTACACAC TTGGTTCATA GACATACATG CCAGCAAATG 1740
ATTGATCCAT ACATATGAAA TAAACCATAA ACAGAAAAAA AAAAGGAAGG TGAGGGAAGG 1800
AAAAAAAGTT TAAAAAAGG AAAGGAAGGA AGGAAGGGAN NNNNNNNNNN NNNNNNNNNN 1860
NNNNNNNNNN NNNNNNNNNN NNNNTCTCTC CATACTGAAA GATGTCCACA ATGACTAAGG 1920
GAATTTTTTT TAAAAGACAA GCACAACGTT TTCTAGGGAT CAAACTCTAT TTGTGAGGAA 1980
GACTGGTGGT TTGAAGATTA CATAGCAGAG TTACATCTAA CATGAGCGTG TTTCCCTGG 2040

ATGGAAGGAG TCTGATAACT TGTCTTTCTT TCTTAGTTAG CATCTCAGAG TCCCCCGCCT 2100
CCCTTAACAT CCTTTTGTGA CACCATCTTT TTAGGAAAAT GGATCATTTA TGGGGATGTA 2160
GTGATTGTGA CAAGAATGTC CCCTGTGGGC TCAGATATTT GAATACTTAG TTCCCAGTTG 2220
GGGGAGCTTT TGTAGGGAGG TTGGGAGGCA CAGCCTGGCA GGAGGAAGCA TGCTAGCAGC 2280
TTTGAGACTA TAAACCCTCA TCTACTACCT TGTCTCTTT CTGCATTGTG CTGTGTCTGA 2340
CACTGTGAGA TTCCTGCTCC CGATGCCATG CCTGCCCCGCC ATGATAGACT CCTAGCCCTC 2400
TGGAAGGTA ACCTCAGTGA ACTCTCTTCT ATAAGTTTCT TTGCTCCTGG TGTTTTATCA 2460
CTGAAACGGA AAAGCTTGCA GGGAGGTAGG AGGCAGCCTG TGGCGTTGAT TCAATGCACC 2520
TGGCCTTATC CTCGGATGAG ATCGGTCACC AGTCAAAAAC TGTGAGCTTG AAGGTCTTGG 2580
GTGCTTAACA TCTATTTTGA CAAATCTTAT TTAGCAACTT AGAACTGTGA AATATTGGAA 2640
AGCTACTTAA ACCTTCTAAA CTCCCTCCTC CACACTATGA GAATGTTACA TTTTCTATTC 2700
AGTTATTTTT GAGCAGTAAA CAGATGAATC AAGGAATATG CCCATCACAT CAAGAGTGCT 2760
CCTAAATGGA CTTGCTTGTT ATTCATTTAC AGTGTGGCCC CTTGACTTTC ATCGGCACTC 2820
CTAGCAGAAA ACAAATCCG CCAGATGGAG CTGGAGAGAT GGCTCAGCTG TTAAGAATAC 2880
TTATCCCTAC ACAGGCCCTG GAGCCAGTTC CCAGCACCCA CACGGTGGCT CACAACCATC 2940
TGTAActCCA GTTCTAGGAG ACCCGACTCC CTCTTCTGTC TGAAAACACC AGGCACGCGT 3000
GCGGTCTACA TACAAACATG AAAGCAAAAT ACACACATTA CATAAATAAA TCTTAAAAAA 3060
TGATTCGGGG TGGGGGAAGG AAAAAAAGG ATGTTAGAAA ATCGATGTAA CTGTTTTTTC 3120
CTTTGCACA GATCTAAGTT AGGGAAGGAG AACATTCTCT TACCATCGAA AATAATTGTT 3180
TTCATTGCCC CCAAGTCTGC TAATAGAGCT TGCTACCTTC ATGGCTGTG TAAGGATGAG 3240
GCAAAGATGG ACTTCAGCTT TCAGACTGTG TCTGCTCAA TGTGGCTAC TCCTGTTTTTC 3300
TGACCCCTT CTCTGGTGCA ATGTGGACTT TCAATTAATT TCCCTGCATC TTTTACATAT 3360
TTGATTTAAA AAATATTTTA TTTTATGTAA TTGTATGTAT ATGCATGTCA ATAAGCATAT 3420
GTGTGTGTGT TTCCATGGAA ACCAAGGCAA CAGATTTTCC AGAGCTGTAG AAATGGGCTG 3480
TGAGACGCCC ACTGTGGGTG TTCGGAACCA AACTCGGGTC CTGTGGAAAG ACAGCGAGCA 3540
CCCATAATGC AGAGGTATCT CTCAGATTTT ACTTTAAAT TTCAATTTTC TTTTTTTTTT 3600
TTAAAGTTCC AAGTAACTAT AGGAAAGTAC ATGGGTATAT AGATCCCCAG TACCAAGATT 3660

CTTCCTTTGC AGGTAGCACA ACTTGTTTTG TTTCACATAA AGAATGGAAA GTCATTAAAA 3720
CACTCATCAC ACTGTAAAGT AGAATTGAAC TCTGACAGAA CAAGCGAAGT GAGTCTGACT 3780
TCCAGGTAAC TGAGCCTTCT TTTCTCCTA AAGACACAAG CCATACACAG AGTAAAATAA 3840
ACTTGGGCAT GGTGAGAAGG AAACAACGCA GGAGGGCTAG CCAAGTCTGA GAGTCGTGAG 3900
TGTGCTCGGT TTATAAACGG AGCCACCTT GCCAGCGAGG TAGTCACATG CTCTGCTAAA 3960
CAGAAACTTA AGAAAACACT TACACGAAGC AAACATGGGG AAGTGCCATG CAAGCATGTG 4020
ACTGACTGGT GGCAATGACC GAAACCACAG CAGCCACTAG AAAAGGAAGG GTAGTGCGCC 4080
ACACTGTAGT TGTGAAAATG AACTTATTCA TTTATTTTGA AAAACGTGTA AGAAGCAAAG 4140
ATGTCCTTCT TCCCACCTAC CTTTGC GGCA GCGAGCACT TCCTGGAATT TATAAAGTGC 4200
GATCTTTCTG GGGACTTCTC ATAACATTTC CTA CTGCTCA TCTATGTCTG TGTCAAATAG 4260
AGAATGCTCT TGAACAAGTG TGTGTGTGTG TGTGTGTGCG CGCGCACGCG CACTCACTCC 4320
TGCTCTGTTG AGGTCCAGTT TTGATGGTCC CGCCAGAGGT ATATTTGAGT ATCATTTCTC 4380
AAGAGCTTCA GCTGGGAGAC ACTGCCTCTT ACTGGCCTGA AGGTCCTAG CTGATTCATC 4440
TCCGTTTGGG CTGGCGCGCC TTGGGGATCC TCCTATCTCT CTTCCCCAG TGCTGGGATA 4500
ACAAGGTTGG CACCACATGA GCCTTTTAAA ATGTGAGTTT GGAAGCTCAA ACGCAGGTTT 4560
TCATGCTTGC ACTGAACTT CACAAGCTGA ACCGTCTCCC TCTCCTCCC TCTCTTTTTT 4620
CCTTTTCTTC TTCCTTTTTA AAACACATCT TGTCTTTAAA AAAAAAAAAA GGCCCAAAAC 4680
AAGTGTAAG TATTTCCCTA TGTGTGTGGA GGGAGGGAGT ATAGGAGGCT GATTTCACTG 4740
AGATCCTGTT AAATTTGGGT GCCATAGCCA ATCAAAGACG CATCGTTTCC TCTAAGAATT 4800
CTAAATGGGG CGATTACCAC GGGCCTGCAG GTTCTGGTTT GTATTAGAGG AGACACTGTC 4860
TTCTTAAGTA AAACATAGAA GGGGAAGTGT CCAGAATTGT AAATAAGGCT TCGAGAGAAG 4920
CCTTGCTGCG CCACCGGGAT GGAGAAGACC TACCTTCGCC TATCCAGGAT CCATCGTCCC 4980
TCCCTCTACC CAGATCTGAC AGCCCTCCTT GGCTCTTTTG CTGAGGTTTG TTTGAGTTTG 5040
TTTACTCTC TGCAAGAGAA GTTTCCTTAA ACATTCTACC CTGTTCAACA GTAAATACAC 5100
CTCTTAGCTA AGAGGCCACA CACCCAGGGG GAACACCGAT AAAAGAACA AGCCAGAACC 5160
TTCAGAACGC TGTCGATAGG TACACCAAGC AGCCTTCATA CGGAGTTTTT ATTTCGTGAGG 5220
AGCTGAATAT ACAACAAAGC TAAATGTGAG CAGACCAGGC ATGCCTCTGC TAAATGAGGA 5280
TGCCACACACC AAACATGCCC AAGATCTTCA AGTATAATTT TATTATATAG ATTCGCTATG 5340

TGTTGACATG TTTTATAGT GAACCTGGAT TTTACAAACC CTCCTGGTTT GCCACCTGCT 5400
TCTGGCACCA TACTTGAGGC TTAGGCACGT GATAAAGGAG CATGCCTGTT TCCCCCTTA 5460
TTTTTTTTAA AGAAAAGCAC CATGTTACAT CATTAAATCAT GCATATCAGT GTAGTTTAGA 5520
TCCGATGTAG AGACAATAAT CTTATCTCTT TGTCTGGCTG AAAGACTGTC CTTTAAACTA 5580
TCATTCTAAA TGCATTTGGT TTTTGCCAGG AGTAAAACAT GTCACAAGAT ATTTGTTGTC 5640
ATTTCCCAGG CGTGAAGGA AAGGAATGGA AAGAAAACCA GGGGTGAAGG CTGCTGTTCC 5700
TCTCTAGTCG CTACTTGAAG TCTACATAGC TGGGGGGGGG GGGGGGACTG TTCACATGGG 5760
ACCGGTTTCC TCTTTGTTCC TACTTGCGG CCTCTGGCAA AAAACTCTCC CTTCTCTTCC 5820
CCCCAAGCAT ATCTTGGCTG AAAGGTCAGC TCTGAAAAGG GGCCTGGCCA AAGTTACTGT 5880
AGGGGACCGT GGTTCATGGA CTGGGTAAAC AAAAGCACTC TAGCAGCCAC TGGAAAAGGA 5940
CCGGGGGCTC TTCTCTGTGC ATTTGCCCTG GAACCCTGAC CACCGCCAGC TCCCTGCATC 6000
TCCTTGCTAT GGGTTTTCTG GACCGACCCA GCCAGGAAGT TCACAACCGA AATGTCTTCT 6060
AGGGCTAATC AGGTAAGTTC GGACGATTTA AAGTTGCCAG ATGGACGAGA AAACAGTAGA 6120
GGCGTTGGCA ACCTGGATAA GCGCCTATCT TCTAATTAAA ACATTGAGAC GGGGCGGGGG 6180
ATGCGGTGGC CAAAGCACCA TAAACAAAA CTCCAAGTA CTGACCAACT CACTGCAAGT 6240
TTGTGCCCCG AGTACATCTA GGTTTCAGGG TTCTTGCTCTT CATGCTCCCA ACTGCGGGCG 6300
GATTTTGGT CCCTTGGGAC TTTCAGTGCA GCGGCGAAGA GAGTTCTGCA CTTGCAGGCT 6360
CCTAATGAGG GCGCAGTGGG CCTCGTGTTT CTGGTGATGC TTCCAGGTT GCTGGGGGCA 6420
GCAAGTGCTC CAGAGCCCAT TACTGGCTAC ATTTTACTTC CACCAGAAAC CGAGCTGCGT 6480
CCAGATTTGC TCTCAGATGC GACTTGCCGC CCGGCACAGT TCCGGGGTAG TGGGGGAGTG 6540
GGCGTGGGAA ACCGGGAAAC CCAAACCTGG TATCCAGTGG GGGGCGTGGC CGGACGCAGG 6600
GAGTCCCCAC CCCTCCCGGT AATGACCCCG CCCCATTCTG CTAGTGTGTA GCCGGCGCTC 6660
TCTTTCTGCC CTGAGTCCTC AGGACCCCAA GAGAGTAAGC TGTGTTTCCT TAGATCGCGC 6720
GGACCGCTAC CCGGCAGGAC TGAAAGCCCA GACTGTGTCC CGCAGCCGGG ATAACCTGGC 6780
TGACCCGATT CCGCGGACAC CGCTGCAGCC GCGGCTGGAG CCAGGGCGCC GGTGCCCCGC 6840
GCTCTCCCCG GTCTTGCGCT GCGGGGGCGC ATACCGCCTC TGTGACTTCT TTGCGGGCCA 6900
GGGACGGAGA AGGAGTCTGT GCCTGAGAAC TGGGCTCTGT GCCCAGCGCG AGGTGCAGGA 6960

TGGAGAGCAA GCGCTGCTA GCTGTCGCTC TGTGGTTCTG CGTGGAGACC CGAGCCGCTT 7020
CTGTGGGTAA GAAGCCCACT CTTTAGTAGT AAGGCGGAGA AGTAGGGTGC GGGCGGAGAG 7080
TGGGAATAGA AGAGGACCTA ACTCGTAGAG CTCTAGAGAC CCTCCTCCCT TGGGTGTTCT 7140
TTCACCTACC AATGGGGAAA CTGAGGTTCA AAGACTCTTC CGAAATGACT CAGCCAGGAT 7200
TCTACTCTCC CCCGGGCATC GGTGAGGCG TGTCTGCGG AGCCGTCACA GCCCCTGGCG 7260
CTAGGTAGGC AGGAGTGGAA AGGCGGCCTG AGCCGGGGCA GGAGATGCTC CCACTGGCAG 7320
GAACAGGCGG TCAAACGCTG GGAAGCCAGC TCAAGCCAAG CGCCCCGGCT GGCATCAATC 7380
ACTCGGTGCT GTTGCCCACC GCCCTAGTGG GGGGCAGGGA ATCCGCCTCT GGCTCCGCTC 7440
CCCTTTAGCT CCAGCGTGTA AGCGCACGGA CTATGTGAGG GTAGGTCTCT TCATAGAGCA 7500
ACACTTTCCT CCCTCAACTT TCTTTGATGC AGAATGCTAT TTTTGCTGGT AGGAGGAAGA 7560
CGCGGCTTTC TCTTCTGTGA CAGCTTCTCC AGGTGTATTA AACTAAATAA CTCTCCACTT 7620
ACCGACTCCA AAGCGCTGGT CCTGGGGTAA ACTCTGAAAG TCTCAGAAAC TCTTGAGCTT 7680
GGCACCTAGT TATAGGTCAC TTTTCTTGTT TTAAATGCC CTCTGCTTCA AGGTTAGGCC 7740
CACACTCGCT CTTGGGCTTT TGTGCAATAA TTTCCCTTCC CTTCCCTTCC CTTCCCTTCC 7800
CTTCCCTTCC CTTCCCTTCC CTTCCCTTCC CTTCCCTTTC CCTCTTCTT TTCTCTCTCC 7860
TCTTCTCTCT CTATTTCTCT GTCATTTCTT TTTTGAAGCC ACAGTTTGCA GATTTCCAAT 7920
CTCCACCCAT TGGAGAATGG AGAATCAGGA AAAAGAAGT CAATTCTGCA GAAACATTCC 7980
TTGCGCCCTA AGAGAATCGC ATGGCTTAAA AGCATTGGCA CTGACATACG GCGCCAAGAT 8040
CGCCTGTCTA GAGCTATTGA GTTTTCTCTA TAATGACTTG GTTCATCAGG CTAGCTCCAC 8100
CACGAGTGCC CTCTTGTTCC TGAGAAGGCC GCACTCTCCC CCTTTCTGGG AAGAGAAAGA 8160
CAGCCTGGAA CATGTGCTTG CCCTGGGTTC CATAGAGAAG CAAGTTGCTT TAAAGCCCAG 8220
AGAATTCCTA GTGTAGCAGC TTAACAGCGT CCCGTTCTCT GAATAAGATG GAGGTTGCCC 8280
TTTTGGAGTG TGTGACTTGC TTAATTGGAT TGGGCTATAA TTGGTGCCAT CCAAGTCTCG 8340
AGACAGAGCC GCTGTTGTTT TTCCTTCTGG TCTTTGAGCG GGAAGGATAA CAGTGACAA 8400
ATTAATTAAT GTTGTTATC GGATTTGAAC ATAAAAGGGC TTTTATTGTA TAGTAGCATA 8460
TGTACCTCTT GCAGTCAGAA TGAGCTGTCT AAAGAACAGA ACCCAAACCT GCCGATGAAA 8520
ATGAATGAGG TTTAATAAAG GCGATGGATG AGCATTAGTC ACTGATGTAA ATCTCCAGTT 8580
ATTGATAACC TCATTGACTG GATTTGATTG CAGACATGTA TTGGTATGGG GCATCCTTTA 8640

AAGATGAGCA TAGCCAACGT GCCTGCACTC TAAGAGAATC TATGGCTGTA TGTTATTACA 8700
GAGACAGTTG AGAAGCTCTT AGTGGCTCTG GCGTGTAGAT CAGCGGTAGA GCGCTGAGGC 8760
TCTGCGCTCG CTTCTGGCA CTGAAGAATA AAGGCCATTT ACTGTGGTGG TGCAGTGGGC 8820
GCAGTTTGTG ACGAGTTACT ACTACATTTT CCTCACACAT CTGCCTGACT AATGAGTTCA 8880
TCAGATGAGC GTATCCAGTG ATTGTTTGCA GGTAAATGGT TCTCAGTCAT GTTTAGAATC 8940
TACTTATCAA ACAAATTGTT TTCTCATTTT CTGCTTCTTC TCAAACAAAG TAAGATTCCA 9000
TTATTGAAAG GCTTGTTTAA GAGCATTTTA ACTGCTTGCC TATGTTAGGG ACAGTGACTT 9060
ATTTTCATATT GACAAATATT ATGCCGATTA ATTGAATATG ACTACCCAGT TCTATAGCTG 9120
TCTCAGGGCA GACCAAGAGC ATCTGTGATC CAGTCACTTT AAATGCCATT TAAAATGCAT 9180
AATTTGTTGG TCTAGGAATA AACACACTGT AAAGTTTAGA ATCACGGCCC AAACACAAGT 9240
CTTTAACAAT GCCAACTAGC TTCTGAGATT CATTAAATGTC ATTTAATTAC CAATGTTTTA 9300
AAAATATGTC ATTAATTACT AAATCTATAG TTGTAACAGC AACACATGTA CATCTTATTA 9360
AGTTGGGTAT ATTCAGGGTG GCATAGCTGT AGACTATTGC ACATCTGTGT TGGTGAGCCA 9420
GTGGAGAACT GCCTCCTGGC TGTTCTCAGA AGGCCACAGT GTCACGGCAT TGGCTATTTG 9480
CCTTGGCTCT TTGCTAATAC TTTATTGACA TGGCCTCATC TTCGTTACG TTCACTTATT 9540
TGCCCAACAA CGTCAATGCC AGCTGAGGCC TTAGGAGTCA TCTGTTCTTA GTCAGTGCGA 9600
ATTAGAAAGC CTGGATGCCT GCCTGCTATT AATTAGTTAT TCTTCTCTTC TGAGACAGAG 9660
TCTCACTGTG TGGCCCAGGC TAGTCTCAA CTTGCGGTCC ATTTGTCTCA CTCATCAGAA 9720
TGCTGGGCTT CCAGGTGTGT GCACCACACT AGGTAGCTCG CGTTTTAAGC TAAGAGCTGG 9780
AAGATCCTGA TGTCTTTTAC CATGGTGGGC ATGTTACAGG TTAGTTGACT GAAAACTAGT 9840
TATCTCGCTG TGTAATGACC TGCAGTGGTA TGTATCTCTC AAGATGCTTT TTTGCATTTT 9900
AATCAGTTAG GTAACAAGTT CTTAAGTCTC CAGCTTGGTA TTGGCATGAG CTCAGAGCTT 9960
TGATTAATGA GTTGGGACCC CCTAGCTATT GCTCATTAGA CTTACACTAT TTTTAGTTTT 10020
GCTCTGAGTT TATGAATATG CATGTATGCA TGAAGTGGG AGATATTTTT CTTCCCCAAT 10080
TCCTTTTCTT CCATTTAAAT GTGCTGTCTT TAGAAGCCAC TGCCTCAGCT TCTGCAGCTC 10140
AGATACCAA GGAAGTCTGG TACACAGCAT GATAAAAGAC AATGGGACGG GGTACAGTG 10200
GCTCCCGTCC CTTTCAGGGG TATGGAGACG AGCTGTAGAG AGATGTCTCC AGGGAGTTTT 10260

CATTAATCAG CAATTTAGTC AGATCTGTGC ATCCTATGCT TTACAAGAAA TGTCAGTGGG 10320
CCTGAGATCA TCAGATGGAG GTTCATCGGG TTTCAATGTC CCGTATCCTT TTGTAAGACC 10380
TTGAAGTTGG CAACGCAGGA AAACAGGAAC TCCACCCTGG TGCCGTGAAT TGCAGAGCTG 10440
TTGTGTTGGT TTGTGACCAT CTGCCCATTG TTCCTGTTAT GACAGAGCTT GTGAACTTTA 10500
ACTGGGACTG GGGCAAAGTC AATCCCACCT TTATACAATG AATTGCTGAA GAGGCCTTTT 10560
AAAAC TTGGA GTGTGCATTG TTTATGGAAG GGCTTTCCTA TTGGATCCAA CTCTTTTCTA 10620
ATTTGTTTCT AGGTTTGCCT GGCGATTTTC TCCATCCCCC CAAGCTCAGC ACACAGAAAG 10680
ACATACTGAC AATTTTGGCA AATACAACCC TTCAGATTAC TTGCAGGTAA GGATTCCTTT 10740
TTGAGCCAGC TTTCTATGT GAAAGGACTC ATTGTTTACT GAGGTCACAA CAATTTCCAC 10800
TATTGCAGAA GTATAATAGT ATTGTTACAA TTGTTTATAA ATCATGAGAC TTCTAAGAAC 10860
CTATTTAATA ATGAAACAAT GGAAAAAGTC TTTTCAAACC TTTGTACTCT TTTGCTGAGC 10920
CGTTTTCAAC ATGCACAAAC ATATTACACA AATATAACAT ACACAGGAAC ACACATGAAT 10980
GCATGGGATG ATGTGCCTAA AACTAGCATG TAATTGATAT TCACAATTAT TGATAAATTA 11040
GTAAAGCAAA GGAATTCCTT ATGAATAGAG CTAAAATTCT ATCCATGTTT AAGTCACCCA 11100
GAATGGCTTC TGGACATTTT TTTTTTTAGC TGTTTTCTAC AAGTGAAATT CTGCCTGTAT 11160
TAGCAATTTA ATATCTAGCC AATAATATTC CTGACCATAT GTCCTGTTCA GACCATGACC 11220
TTCATAATCT GGCTTGATGT TCTGGGCTTC TTTCCCTCTT GCCAGCAAGA TGTCACGGTG 11280
TTGATGCTGG ATAAACTGAG AAACAGAAGT TTTTCGCAAG AAGAGGACCT TGAATTTTGC 11340
TTTTCCCCTG AGAGACAAGA AAGGAACTT AGAGGAGGTG TAGCTGGGAG TGTGGTCATT 11400
CATGAAAGAC CTGTTTGCAG GGCAGTGTGT TTTGCTGGGG ACAGTAATGA GCCTAGATCG 11460
TAGTGCCATC CCAAGAGAGT GCTTGGTGGC AAAAAGAGCC CTAGCAGCTT GTGGCAGTTG 11520
CCTCATATTT GAAGAATACT AAGAGGTCCC CCGAATAACT CAGGGCTAGT GTTGATCATT 11580
GCATGTGGAG AGAATCCAAG CCTCCTATCT AGGGTCTACA AAAGTAACCA ATGCCCAGTC 11640
TTTGGGGGAA AGCAAAACCA GAAAGCGATG ATAGCAGGAC CTGTTTATTT TCATTAAGTC 11700
ATGGCATTTT CAGAGACTTT GCTCCCCCTA TTCTCAGACA CAAAGCCCAC TTAAGATCTC 11760
CCTCTGGAGA CTGCTGGGAA CATTTCTTAA GTTCTGAAAA AACCTGGAG TGATTGGGCA 11820
CAGACGATCC TGTCATTCA TGTGAGTGCT AAGCTCTTTG GGTGATGACT CAGTGGGTCA 11880
CATTGTTTTA TTCATATTGA CTACCTTCCG TTTGCTTTGC GGAGAATGGA AGCTATAGAA 11940

GTCTGTTTGG TGTGGCCCTC ACAAGGCACT GTGAGCTTCT TCTCTCTGTG TGCTAACTTC 12000
TTACTCTCCC TTGCTTATAC CCACATAGGG ACTCTGGCTT TGTGCTGTT CTTCAATGCT 12060
TCAGATGTGC CCTGGGTCCT GTCTGTCCTT CACACTTACT GATGCTGCCT GGAATGCTAT 12120
TCCTCCCAAT GTGCATAGGG CCAGCTCGGT CCAAATCCTC TCTTTTCTTT GCCTCTTTTA 12180
TATTTTCCTT CACAGTATCA AATCACCACA GTTTATGCAA CAAACTGAAA CTTTAAAATT 12240
GTCTGTCTCC TTATATTAGT GATAGGTTCC AGAAAGGCAC TGATTTTTTT TCTTCCCTGG 12300
TGTACACTGG GCAACTACTC TACCACTGAG CGTGATATCC TTGGTCCCTT AAAAGTTATC 12360
CTCTGTCCCT AATAATGCTT AGCAATCATA TTTGCTTAAA ATATTTATTG AATGACTGCA 12420
GGAATGAATG AATGAATGAG CTAACAGAAA ACTCATGACC ATGTGGGTGA TTTCCGAAAC 12480
AGAGTGTGAG ATCTTTGGTG GCATGTCCTT GTAGACTGTC TGCCACCAGT ATCTATCATC 12540
TTGAAGGTGA CTATTGAGTA GTTTATATGC ATGTGAAAAA CCAAACCTTC TATTCTCTTA 12600
CTCATAGCCT CTCTTAATCA TAGCCCTGTG GCATGGAGTG TACCATTGAT ATCTTCCTGG 12660
AATACTTTTT CAGGGGACAG CGGGACCTGG ACTGGCTTTG GCCCAATGCT CAGCGTGATT 12720
CTGAGGAAAG GGTATTGGTG ACTGAATGCG GCGGTGGTGA CAGTATCTTC TGCAAAACAC 12780
TCACCATTCC CAGGGTGGTT GGAAATGATA CTGGAGCCTA CAAGTGCTCG TACCGGGACG 12840
TCGAC 12845

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

GGGGTACCGA ATTCTAAATG GGGCGATTAC C

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

GTGGTACCCA AACACTCAAC ACCACTG

27

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

TCGGTACCGA CCCAGCCAGG AAGTTC

26

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

TTGCTAAGCT TCCTGCACCT CGCGCTGGG

29

(2) INFORMATION FOR SEQ ID NO: 6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

AGGGATCCAC TCTTTAGTAG TAAGGCG

27

(2) INFORMATION FOR SEQ ID NO: 7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

ACCTCGAGAC TTGGATGGCA C

21

(2) INFORMATION FOR SEQ ID NO: 8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

GGGCTATAAT TGGTGCCATC C

21

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

GGATGGAGAA AATCGCCAGG C

21

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 22 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

GTGTGCATTG TTTATGGAAG GG

22

(2) INFORMATION FOR SEQ ID NO: 11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

CATAGACATA AACAGTGGAG GC

22

(2) INFORMATION FOR SEQ ID NO: 12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

....(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

ATGGTACCCA GGTTGCTGGG GGCAG

25

(2) INFORMATION FOR SEQ ID NO: 13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

....(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

TGGTGCCGGA AACCAGGCAA A

21

(2) INFORMATION FOR SEQ ID NO: 14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

....(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

ATCCTCTGCA TGGTCAGGTC

20

(2) INFORMATION FOR SEQ ID NO: 15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

....(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

CGTGGCCTGA TTCATTCC

18

(2) INFORMATION FOR SEQ ID NO: 16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 33 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

GGGAATTCAC CATGAGTTCT GAACGTCGAA AAG

33

(2) INFORMATION FOR SEQ ID NO: 17:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 59 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

AAGCGGCCGC TCATTTATCG TCATCGTCCT TGTAATCGTT AACTTGATCC AAAGCTCTG

59

(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
(A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

GGGAATTCAC CACAATGACA GCTGACAAGG AG

32

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 64 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

AAGCGGCCGC TCATTATCG TCATCGTCCT TGTAATCGTT GGTGGCCTGG TCCAGAGCTC 60
TGAG 64

(2) INFORMATION FOR SEQ ID NO: 20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

CCGGTACCCA AACCCCGCCC AGCGTCTTG 29

(2) INFORMATION FOR SEQ ID NO: 21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "oligonucleotide"

(iii) HYPOTHETICAL: YES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

CCGACAAGCT TGGTCGCTCG GTGTTTCGAGG

30

[illegible]